

Appl. No. 10/070,846

Amdt. Dated November 24, 2004

Reply to Office action of September 17, 2004

**REMARKS**

Claims 1-26 are pending in the application, claims 21-25 are allowed, and claims 1-20 are rejected. Claims 1 and 13 have been amended, and claim 17 has been cancelled.

**AMENDMENTS TO THE SPECIFICATION**

Upon a review of the specification, it was discovered that the three aircraft discussed were not properly identified in the specification. That is, all three aircraft in the specification are denoted by the same reference (35). Two of the aircraft should have been denoted as 35' and 35'' as is shown in FIG. 3. Thus, the specification has been amended to reflect this change.

**CLAIM REJECTIONS – 35 USC § 103**

Examiner rejects claims 1-14 and 16-18 under 35 U.S.C. 103(a) as being unpatentable over Martin (WO 99/23769) in view of Hansell (US 2,627,021). Examiner states that with respect to claims 1, 12, and 17, Martin discloses three aircraft each flying eight hour missions so as to provide continuous communication capabilities to service region 16. Examiner states that Martin does not disclose the flight patterns of aircraft at less than 50,000 feet; however, he states that this would be obvious in view of Hansell.

It should be very clear from Applicants' specification that Applicants' inventive communication link involves two or three aircraft acting in concert. This is very clearly shown in FIGS. 3-12, and the accompanying specification beginning on page 7, line 7 to page 13, line 20. Examiner refers to the Martin reference as teaching the use of three aircraft flying eight hour missions and refers to FIG. 1 and page 7, lines 1-4 of Martin. This portion of Martin states that three aircraft each flying eight hour missions can provide single communication capabilities to service a single region 16 for 24 hours a day. It does not teach or suggest the use of a plurality of aircraft to form a design. At best, Martin teaches the use of individual aircraft to

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simultaneously service separate and distinct regions. In this respect, the Hansell reference does not supply the deficiency in the teachings of the Martin reference. To this end, Applicants' independent claim 1 has been amended to recite that the footprints produced by the first and second aircraft are at least partially overlapping as is clearly shown in FIGS. 4-10. Therefore, it is respectfully submitted that Applicants' amended independent claim 1 distinguishes over and is unobvious in view of the references taken singly or in combination.

With respect to claims 2-4, Examiner states that it would be inherent to have aircrafts that support an aircraft-based communication system as well as to have a reserve aircraft. It appears that Examiner has only addressed claim 4 and not claims 2 and 3. That is Applicants' dependent claim 2 further recites that a first airport is located away from a center of a coverage area of the first and second airplanes, which corresponds to a glide-down distance of the first and second airplanes. This is a safety feature which is not even remotely suggested in any of the cited references. Likewise, dependent claim 3 recites a second airport for providing services generally redundant to those at the first airport and situated at a location accessible to the first and second airplanes. Again, there is no suggestion of these features in any of the cited references. Since claims 2 and 3 recite features not suggested in the cited references, and since claims 2-4 are believed to properly depend, either directly or indirectly, from Applicants' amended independent claim 1, these claims are believed allowable therewith.

Examiner states that with respect to claim 14, Martin discloses a ground control station in FIG. 2 for switching over service. Applicants respectfully submit that is not clear to Applicants what portion of the description of FIG. 2 Examiner is referring to. Regardless, Applicants' claim 14 is believed to properly depend from Applicants' amended claim 13 which is believed allowable for reasons that will be discussed below in connection with Applicants' independent claim 13.

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With respect to claim 11, Examiner states that Martin discloses that the aircrafts adjust flight patterns to circumvent storms and refers to page 8, lines 20-32. It is respectfully submitted that page 8, lines 20-32 of the Martin reference describe no such thing. This portion of the Martin reference merely recites an embodiment where a gateway 22 is located in a center section 24 near the center of orbit 30 so as to reduce the slant range between gateway 22 and ASN 14 and that therefore the signal path lane through heavy rainfall is reduced. It further states that the data rate may be increased if gateway 22 communicates with ASN 14 using a dedicated, high-gain, mechanically gimbaled antenna. Therefore, Applicants are confused as to how Examiner concluded that this portion of the specification discloses aircrafts adjusting their flight patterns to circumvent a storm.

Examiner uses the same portion of the Martin reference as the basis for rejecting Applicants' independent claim 18. Applicants' independent claim 18 recites maintaining a first airplane in a first flight pattern over a designated geographic area through a first communication link, flying a second airplane up to a predetermined flight pattern to establish a second communication link over the designated geographic area, moving calls carried on the first communication link to the second communication link according to a predetermined switch-over protocol, and flying the first airplane out the first flight pattern after all calls have been switched over to the second communication link. As was the case in connection with claim 11, the portion of the Martin reference being relied on by Examiner in no way teaches or suggests the subject matter of Applicants' claim 18. If Examiner is still convinced that page 8, lines 20-32 of the Martin reference render Applicants' claim 18 obvious, Applicants' respectfully request further explanation of exactly how Examiner is applying the reference.

With respect to Applicants' claim 13, Examiner states that Martin discloses a ground control system for switching over service. Applicants' independent claim 13 has been amended to include the feature originally in dependent claim 17; that is, that the first and second flight patterns are substantially parallel and substantially 180° out-of-phase. Other than generally rejecting claim 17 under 35 U.S.C. 103(a) as obvious over Martin in view of Hansell, Examiner makes no further reference to the feature recited in original dependent claim 17 or to that portion of the cited reference upon which Examiner is basing his rejection. Applicants can find

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no teaching in the cited reference which anticipates or renders this feature obvious. Therefore, it is respectfully submitted that Applicants' amended independent claim 13 is allowable. Claim 17 has been cancelled. Claims 14-16 are believed to properly depend, either directly or indirectly, from Applicants' amended claim 13 and are believed allowable therewith.

Examiner rejects claim 18 stating that Martin discloses that aircrafts adjust flight patterns to circumvent a storm, again referring to page 8, lines 20-32 of the Martin reference. Applicants' independent claim 18 in no way relates to adjusting flight patterns to circumvent a storm. Applicants' independent claim 18 is a method claim that recites maintaining a first airplane in a first flight pattern to provide continuous coverage over a designated geographic area through a first communication link, flying a second plane up to a predetermined flight pattern to establish a second communication link over the designated geographic area, moving calls carried on the first communications link to the second communications link according to a predetermined switch over protocol, and flying the first airplane out of the first flight pattern after all calls have been switched over to the second communication link. Since claim 18 does not deal with adjusting flight patterns to circumvent a storm as stated by Examiner, Applicants do not understand the basis for Examiner's rejection of this claim under 35 U.S.C. 103. It is, however, respectfully submitted that the claimed method is not shown or suggested in any of the cited references taken singly or in combination. Therefore, it is respectfully submitted that Applicants' independent claim 18 is allowable.

Examiner rejects dependent claims 19-20 under 35 U.S.C. 103(a) as being unpatentable over Martin in view of Hansell, and further in view of Rouffer. Examiner states that Martin and Hansell do not teach the step of adjusting power levels of the aircrafts in order to switch over service, but states that when the quality of service provided by a satellite is deteriorating, service is handed off from a first satellite to a second satellite as described in Rouffer. It is respectfully submitted that Examiner is using improper hindsight in the formulation of this rejection.

Applicants' respectfully submit that their claims relate a multi-aircraft cellular communication system, not a satellite communication system, and that transferring service from a first aircraft to a second aircraft presents entirely different problems than those associated with transferring service from a first satellite to a second satellite. In any event, Applicants' claims 19 and 20 are

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believed to properly depend from Applicants' independent claim 18 are believed allowable therewith.

Applicants respectfully submit that Examiner has not established a prima facie case of obviousness. Examiner has the burden of providing factual support for any prima facie conclusion of obviousness. To reach a proper determination of obviousness under 35 USC §103, Examiner is required to step back in time and determine that the claimed invention as a whole would have been obvious at that time to a person of ordinary skill in the art just before the invention was made. Examiner cannot rely on Applicants' disclosure to reach this determination. Impermissible hindsight must be avoided, and the conclusion of obviousness reached on the basis of facts in the prior art.

Examiner is well aware of the three basic criteria necessary to establish a prima facie case of obviousness. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success, and third, the prior art reference or references must teach or suggest all the claim limitations. The teaching or suggestion to make the combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicants' disclosure. In *Re Vaack*, 947 Fed. 2d 488, 20 USPQ 2d, 1438 (Fed. Cir. 1991).

It is known that the rationale to modify the prior art does not have to be expressly stated in the prior art, but may be reasoned from knowledge generally available to one of ordinary skill in the art, established scientific principles, or legal precedent established by prior case law; however, Examiner must present a convincing line of reasoning supporting the rejection. There is no suggestion or motivation in the references that would render these elements obvious. Therefore, Examiner's rejection must be based on knowledge generally available to one of ordinary skill in the art. However, Examiner has given no indication that these limitations are impliedly contained in the prior art or that it may be reasoned from knowledge generally available to the skilled practitioner or established by scientific principles or legal precedent.

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### ALLOWABLE SUBJECT MATTER

Examiner indicates that claim 21-25 are allowed stating that the prior art of record fails to disclose or render obvious the circumscribing flight pattern circle until a new operating point corresponding to a point on an alternate flight pattern is reached; and executing the alternate flight pattern having a radius similar to the first flight pattern to maintain the cellular communication coverage over the predetermined geographic area. It is obvious that Examiner is referring to claims 22-25 and not claim 21. Claim 21 is a dependent claim, which depends from Applicants' amended independent claim 18 and is believed allowable therewith.

The allowance of claims 22-25 is noted. It is also to be noted, however, that the application also contains a dependent claim 26, which depends from allowed claim 22. (claim 26 was not mentioned by Examiner). This claim recites that the moving from the first flight pattern is a terrestrial-based function. Since this claim is believed to properly depend from Applicants' allowed claim 22, it is believed allowable therewith.

### CONCLUSION

In view of Applicants' amendments and remarks, it is respectfully submitted that Examiner's rejections under 35 USC § 103, have been overcome. Accordingly, Applicants respectfully submit that the application, as amended, is now in condition for allowance, and such allowance is therefore earnestly requested. Should the Examiner have any questions or wish to further discuss this application, Applicants request that the Examiner contact the Applicants' attorneys at 480-385-5060.

If for some reason Applicants have not requested a sufficient extension and/or have not paid a sufficient fee for this response and/or for the extension necessary to prevent abandonment on this application, please consider this as a request for an extension for the required time

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period and/or authorization to charge Deposit Account No. 50-2091 for any fee which may be due.

Respectfully submitted,  
INGRASSIA FISHER & LORENZ

Dated: 12/3, 2004

By: 

Vincent B. Ingrassia

Reg. No. 25,732

(480) 385-5060